EPILEPSY

BY : Mahmood Hazim Sulaiman

WHAT IS EPILEPSY ?

Is a neurological disorder where brain activity becomes abnormal , leading to

seizures or periods of unusual behavior , sensation and sometimes loss of awareness , it affect people of all ages and the severity and type vary from person to person.

Common symptomes of epilepsy

1. Loss of consciousness
2. Uncontrolled muscle movement
3. Repetitive motion of body parts
4. Inability to talk or unusual mouth movements
5. Periods of unresponsiveness

Common risk factors

1. Genetic factors such family history of epilepsy
2. Prenatal factors such maternal infections (e.g. rubella)
3. Environmental factors such as exposure to strong light , trauma or noises
4. Other medical condition such cerebral palsy

Types of epilepsy

-Focal seizure include :

1. Focal aware seizure
2. Focal unaware seizure

- General seizure include :

1. Absence seizure
2. Tonic seizure
3. Atonic seizure
4. Clonic seizure
5. Myoclonic seizure
6. Tonic - clonic

Focal seizure

Focal aware seizure : does not involve loss of consciousness but it may cause alteration in different senses such tasteing , smelling or hearing

Focal unaware seizure : cause loss of consciousness with other symptoms like repetitive movement and unresponsiveness .

Generlized seizure

1. Absensce seizure : cause symptoms like short periods of loss of awareness , repetitive movements like lip smacking or blinking
2. Tonic seizure : sudden stiffness in muscle of leg , trunk and arm may happen
3. Atonic seizure : loss of muscle control occur
4. Clonic seizure : repeated , jerky muscle movement of face , neck or arms may occur
5. Tonic- clonic seizure : stiffness of body , shaking , loss of bladder or bowel control , bitting of tongue and loss of consciousness may occur
6. Myoclonic seizure : cause spontaneous quick twitching of the arms , and legs

Diagnostic procedures

1. Neurological examination such patient behavior , motor ability and mental function
2. Blood test to check for signs of infection
3. Electroencephalogram EEG – the most common test used to diagnose epilepsy
4. CT scan and MRI to detect brain abnormalities such as tumors or cysts

Management of epilepsy

MEDICAL MANAGEMENT INCLUDE :

administration of major seizure medications :

- Phenobarbital (luminal)
- Tegretol
- Depakene

SURGICAL MANAGEMENT :

May be performed in cases of intracranial tumors , cysts , abscess or vascular anomalies .

Nursing care for epilepsy patients

- Privacy and patient protection
- Protect head to prevent injury
- Assess and maintain patent airway
- Oxygen administration if needed
- Give intravenous hydration and drug therapy to arrest the epilepsy activity
- Keep the patient on one side to prevent aspiration

Thank you

Gastroenteritis and Dehydration

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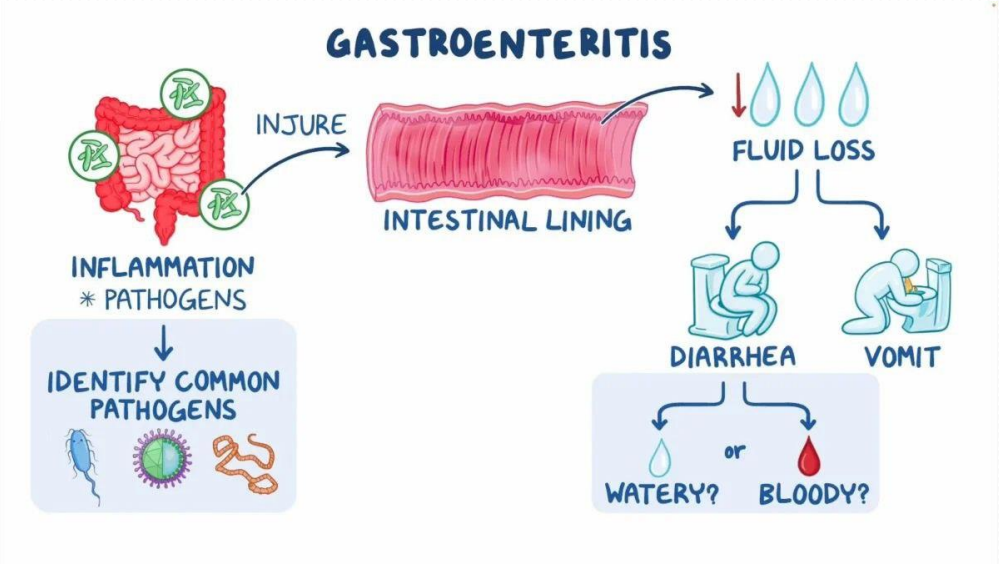
CONTENTS

- Definition of Gastroenteritis
- Etiology and Pathophysiology
- Sign and Symptoms
- Assessment and Diagnostic test
- Treatment
- Prevention
- Complication (Dehydration)
- Nursing management

Definition

- Gastroenteritis is <u>inflammation of the digestive tract</u> that results in vomiting, diarrhea, or both and is sometimes accompanied by fever or abdominal cramps.Gastroenteritis is usually caused by a viral, bacterial, or parasitic infection.



The gastroenteritis also called " stomach flu "

Etiology

Infectious gastroenteritis may be caused by viruses, bacteria, or parasites.

1- Viruses are the most common cause of gastroenteritis ،the most viral gastroenteritis is caused by :

-Rotavirus : are mainly transmitted from person-to-person through the faecal-oral route, but transmission may also occur through contaminated objects (e.g. door-handles, water-taps, toilet-seats and toys), airborne droplets and contaminated water or food

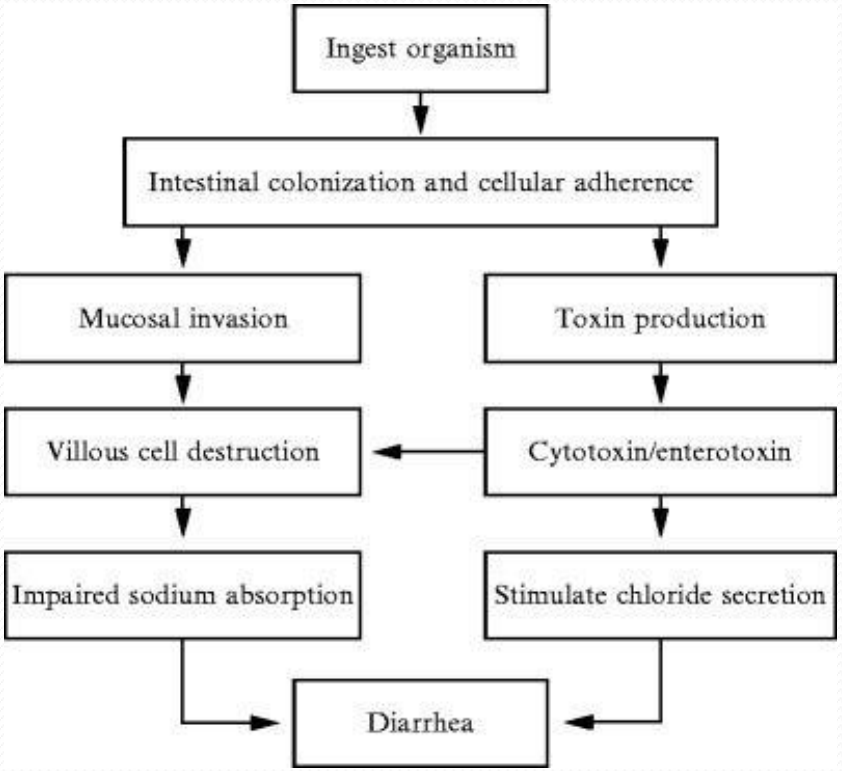
- Norovirus

2- Bacterial gastroenteritis : Campylobacter , E.coli , Salmonella and Shigella

3- Parasitic gastroenteritis (Giardia)

pathophysiology

Viruses infect enterocytes in the villous epithelium of the small bowel. The result is transudation of fluid and electrolytes into the intestinal lumen; sometimes, unabsorbed carbohydrates resulting from malabsorption in the affected bowel subsequently worsen symptoms by causing watery diarrhea.



Sign and Symptoms

Symptoms of gastroenteritis are usually a combination of :

diarrhea and/or vomiting

Abdominal cramps

low-grade Fever

Poor appetite

- Gastroenteritis caused by Viruses cause watery diarrhea. Stools rarely contain mucus or blood , Gastroenteritis may last 5 to 7 days in infants and young children.

- Gastroenteritis caused by bacteria are likely to cause fever and bloody diarrhea and some types cause abdominal cramps.

- Gastroenteritis caused by parasites typically cause diarrhea that may last for a long time and may cause diarrhea that comes and goes. The diarrhea is usually not bloody.

Clinical assessment

Suspect gastroenteritis if there is a sudden change in stool consistency to watery stools (usually lasts for 5-7 days, and most stop within 2 weeks) and/or a sudden onset of vomiting (usually lasts for 1-2 days, and most stop within 3 days). The clinician should be aware that in children with gastroenteritis:

duration of illness , the number of episodes per day , the presence of blood in the stool accompanying symptoms such as fever, abdominal pain, and urinary complaints

Physical examination can be useful in identifying signs of dehydration e.g. - level of alertness, presence of sunken eyes, dry mucous membranes, and skin turgor

Auscultation will detect the hyperactivity of bowel movements

Diagnostic test and Treatment

stool specimens maybe collected for culture and sensitivity testing to determine the causative infectious organism.

Treatment

- Help your child rehydrate. Give your child an oral rehydration solution in mild cases , but in severe cases child should take a IV fluids to replace fluid loss .

- Avoid certain foods. Don't give your child sugary foods, such as ice cream, sodas and candy. These can make diarrhea worse.

-Antibiotics aren't effective against Viralgastroenteritis , only against Bacterial gastroenteritis

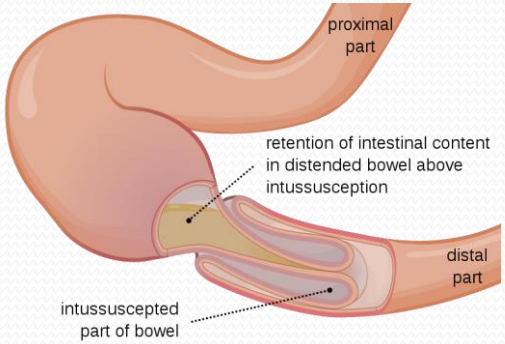
- Avoiding anti-vomiting or anti-diarrhoea drugs unless prescribed or recommended by your doctor, because these medications will keep the infection inside your body.

Prevention

- hand washing
- avoid stored foods and contaminated water
- Breastfeeding is effective way to prevent gastroenteritis in newborns and infants.
- For infants who are bottle-fed, caregivers should wash their hands thoroughly with soap and water before preparing bottles.
- It is preferable to use more than one feeding bottle to ensure better sterilization.
- Rotavirus Vaccine.

The rotavirus vaccine is a live vaccine targeting rotavirus and is given via the oral route to infants. vaccine products are currently available is RotaTeq requires three doses (at 2, 4, and 6 months) (CDC, 2019b) Administration of rotavirus vaccine is contraindicated in children with SCID or a history of intussusception

side effects of rotavirus vaccine: diarrhea , vomiting , fever , and rarely intussusception .



Complications of gastroenteritis

The most common complication of severe gastroenteritis is dehydration which is a body fluid disturbance occurs when the total output of fluid exceeds the total intake, Although dehydration can result from lack of oral intake (especially in elevated environmental temperatures), more often it is a result of abnormal losses, such as those that occur in vomiting or diarrhea.

The degree of dehydration

Evaluating Extent of Dehydration

	LEVEL OF DEHYDRATION		
Clinical Signs	**Mild**	**Moderate**	**Severe**
Weight loss—infants	3%-5%	6%-9%	≤10%
Weight loss—children	3%-4%	6%-8%	10%
Pulse	Normal	Slightly increased	Very increased
Respiratory rate	Normal	Slight tachypnea (rapid)	Hyperpnea (deep and rapid)
Blood pressure	Normal	Normal to orthostatic (>10 mm Hg change)	Orthostatic to shock
Behavior	Normal	Irritable, more thirsty	Hyperirritable to lethargic
Thirst	Slight	Moderate	Intense
Mucous membranes*	Normal (moist)	Dry	Parched
Tears	Present	Decreased	Absent, sunken eyes
Anterior fontanel	Normal	Normal to sunken	Sunken
External jugular vein	Visible when supine	Not visible except with supraclavicular pressure	Not visible even with supraclavicular pressure
Skin*	Capillary refill >2 sec	Slowed capillary refill (2-4 sec [decreased turgor])	Very delayed capillary refill (>4 sec) and tenting; skin cool, acrocyanotic or mottled
Urine	Decreased	Oliguria	Oliguria or anuria

Rehydration therapy

Degree of Dehydration	Rehydration Therapy*	Replacement of Stool Losses
Mild (5% to 6%)	ORS, 50 ml/kg within 4 hours	ORS, 10 ml/kg (for infants) or 150 to 250 ml at a time (for older children) for each diarrheal stool
Moderate (7% to 9%)	ORS, 100 ml/kg within 4 hours	Same as above
Severe (>9%)	Intravenous fluids (Ringer lactate), 40 ml/kg until pulse and state of consciousness return to normal; then 50 to100 ml/kg or ORS	Same as above

- **Complication of dehydration**

hypovolemic shock This is one of the most serious, and sometimes life-threatening, complications of dehydration. It occurs when low blood volume causes a drop in blood pressure and a drop in the amount of oxygen in your body

Nursing Management

- Assess vital signs (Normal pulse : less than 160 beats/minute for infants and normal respiratory rate less than 40 breath/minute and)
- Encourage intake of fluids orally if it's possible , using ORS.
- NG feeding. For patients who do not tolerate ORS by mouth, nasogastric (NG) feeding is a safe and effective alternative
- IV rehydration. IV access should be obtained in severe dehydration and patients should be administered a bolus of 20-30 mL/kg lactated Ringer (LR) or normal saline (NS) solution over 60 minutes.

- Control of diarrhea (administer of antidiarrheal if need it)
- Assess infant/child for abdominal pain (gently palpate the abdomen moving toward the area of maximal tenderness)
- Assess input and output of fluid and nutrition .
- Assess signs of dehydration .
- Educate about handwashing , clean water for cooking and proper hygiene measures
- Educate caregiver about viral gastroenteritis and the rotavirus vaccine

outcome identification

Able to eat

No diarrheal

No abdominal symptoms

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thank you

NASOGASTRIC TUBE

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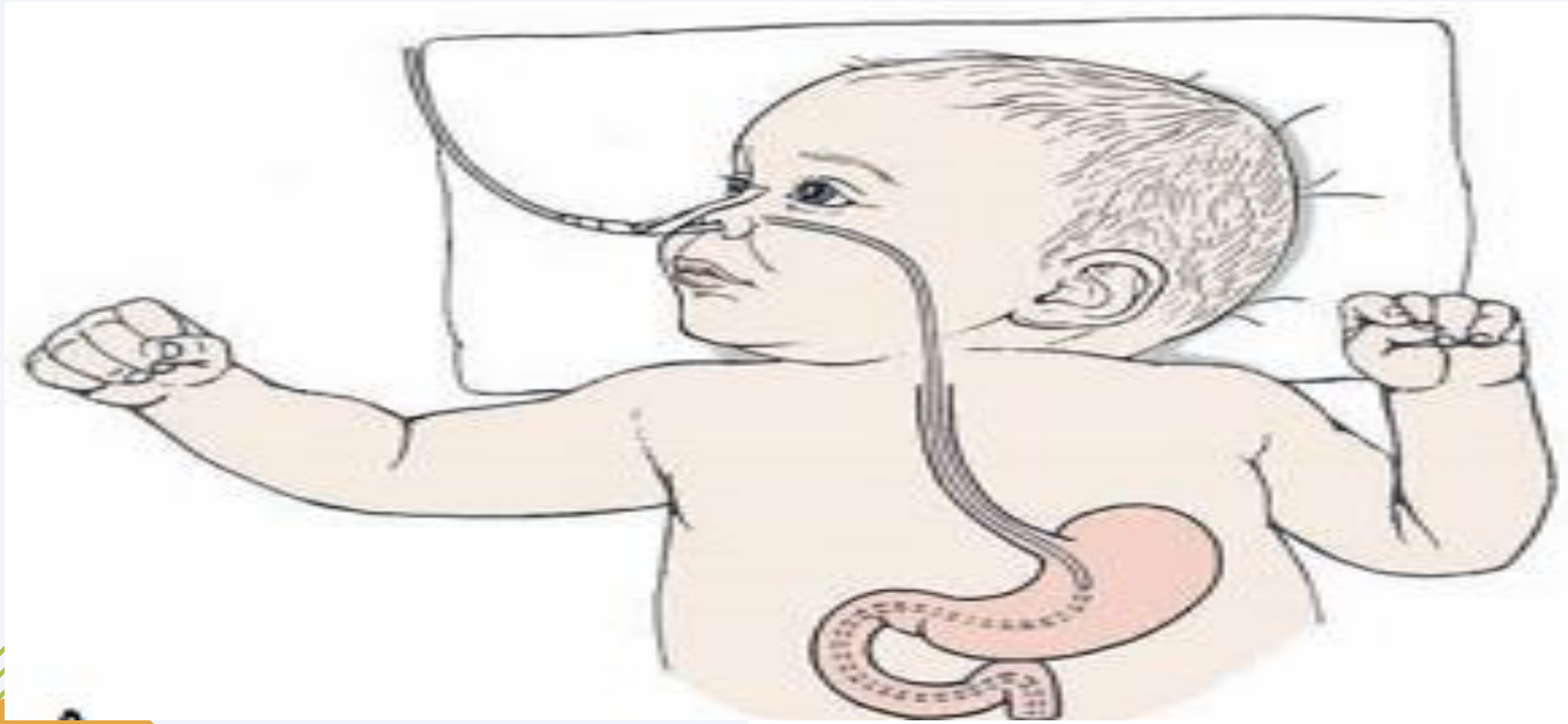
Nasogastric (NG)

tubes are used in infants and children for feeding when the child is comatose, semiconscious ,or unable to consume sufficient food orally .

The NG tube can also be used to empty or decompress the stomach after gastrointestinal surgery , clean and flush the stomach after the child has ingested a poisonous substance , document the presence of blood in the stomach , monitor the amount of bleeding from the stomach , or identify any recurrent bleeding .The size of the NG tube is determined by the age , weight , and size of the child .



INDICATION

- **Diagnostic**

1. Aspiration of gastric fluid content
2. Identification of the esophagus and stomach on a chest radiograph
3. Administration of radiographic contrast to the GI tract

INDICATION

- **Therapeutic**

1. Relief of symptoms and bowel rest in the setting of small-bowel obstruction
2. Aspiration of gastric content from recent ingestion of toxic material
3. Administration of medication
4. Feeding
5. Bowel irrigation

CONTRAINDICATION

- **Absolute contraindications**

1. Severe midface trauma
2. Recent nasal surgery

- **Relative contraindications**

1. Coagulation abnormality
2. Esophageal varices or stricture
3. Recent banding or cautery of esophageal varices
4. Alkaline ingestion

EQUIPMENT

1-appropriate size nasogastric tube

2-water-soluble lubricant

3-syringe

4-blanket for restraint ,if appropriate

5-gloves

6-pacifier

7-emesis basis

8-towel

9-stethoscope

TUBE SIZE

weight of child	size
2kg	5 French
3-9 kg	8 French
10-20 kg	10 French
20-30 kg	12 French
30-50 kg	14 French
>50 kg	16 French

TYPES OF NASOGASTRIC TUBES

The Levin Tube -is a one-lumen nasogastric tube

The Salem-Sump Tube.

This tube is a two-lumen piece of equipment.

It has a drainage lumen and a smaller secondary tube that is open to the atmosphere.

The Miller-Abbott Tube.

This tube is also a two-lumen nasogastric tube.
There is a rubber balloon at the tip of one tube; the other tube has holes near its tip.

The Cantor Tube - has one lumen and a bag on the end.

PROCEDURE

1-Gather equipment. Select appropriate size and type of nasogastric tube .

2-Wash hands .put on non-sterile gloves.

3-Prepare child and family.

4-Position child supine at a 30-45 angle if possible .

5-Assess patency of nares

6-Measure length of tube to be inserted and mark tube with a piece of tape. several methods of measuring length of nasogastric tube to be inserted have been identified .

A- Measure from the tip of the nose to the earlobe and from the earlobe to the lower end of the xyphoid process. This is a commonly used method.

B-Measure from the nose to the earlobe and from the earlobe to a point halfway between the xyphoid and the umbilicus.

7-Place towel over the child's chest .

8-Lubricant 1 to 3 inches of the tube with water or a water-soluble gel.

9-Insert tube back and up into nostril; advance using gentle pressure .if resistance is met ,withdraw the tube , re lubricate ,and try the other nostril.

10-If the child is able , ask child to swallow as the tube is advanced. A pacifier may be used for an infant over 3months of age who does not need to mouth breath . continue to advance the tube until the tape mark is at the nostril.

11-Check back of mouth for kinking of tube.

12-Remove tube immediately if there is vomiting or signs of respiratory distress(e.g. ; cyanosis , tachypnea ,nasal flaring ,grunting ,wheezing, prolonged coughing or choking)or if the child is unable to speak or cry.

13-Remove guide wire if applicable .

14-Verify placement of nasogastric tube per agency protocol. The several methods for determining appropriate placement of nasogastric tube . these include insufflation of air while listening for the sound of the air. withdrawal of gastric/intestinal contents. And inserting end of tube in the water and watching for bubbles. The most reliable method for confirming placement is x-ray.

15-Secure tube by placing hypoactive dressing on child's cheek and then securing the tube to the dressing with the transparent dressing or tape. The tube also may be taped to the upper lip or nose . use a 4-inch length of tape, split about 2 inches of the tape lengthwise ,place un split end on nose, wrap split ends around tube and secure to nose .

16-attach tube to suction ,feeding ,or clamp as ordered .

17-remove gloves. Wash hands.

COMPLICATION

1-skin erosion at the nostril

2-sinusitis

3-esophagitis

4-gastric ulceration

DOCUMENTATION

1-insertion procedure with date and time.

2-how tolerated the child .

3-type and size of tube.

4-which nostril used .

5-patency .

6-amount ,color ,and consistency of returns.

7-laboratory tests done on gastric contents , if applicable.

With Best Wishes For You

OXYGEN THERAPY

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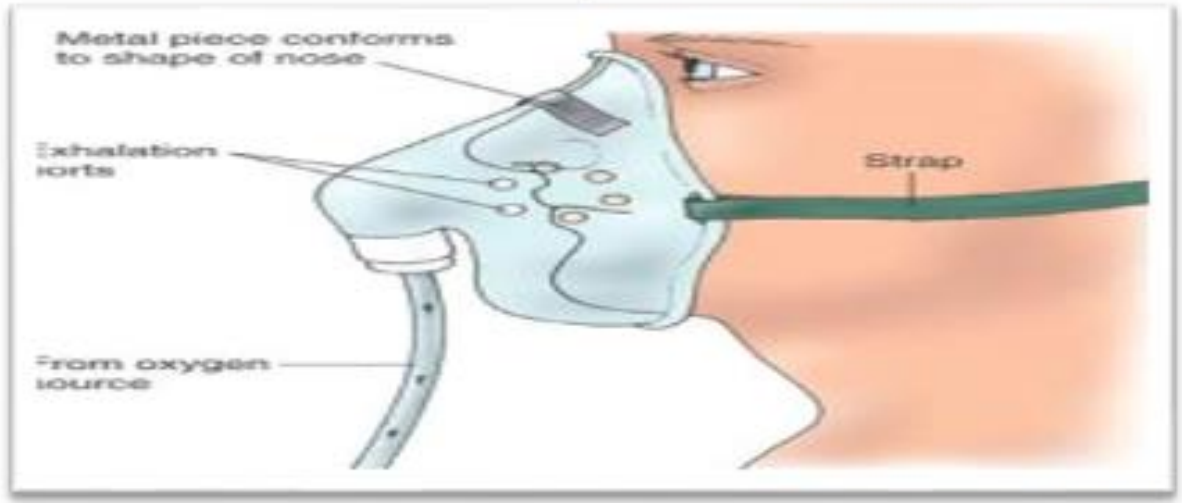
OXYGEN THERAPY

Oxygen is considered a medication . Delivery device ,Flow rate , and Concentration must be ordered by a physician and checked frequently. However ,in emergency situations administer oxygen in amount necessary to provide immediate oxygenation. Humidification is needed when administering oxygen to prevent nasal passages from drying out .To provide this ,attach a sterile, water-filled container to the oxygen or flow meter with a connecting tube.

Oxygen is delivered via mask ,nasal cannula, hood , tent . Method of delivery is selected based on :

1-Concentration of inspired oxygen needed.

2-Abililty of child to cooperate.



Mask

Nasal cannula

Oxygen Hood

Tent

EQUIPMENT

Pulse oximeter

Stethoscope

Oxygen source

Flow meter

Sterile water container

Connecting tubing

Oxygen delivery device:

Nasal cannula

Simple face mask

Hood

Tent

PROCEDURE

1-Gather equipment.

2-Wash hands

3-Assemble equipment. Attach flow meter to oxygen outlet, ensure that tubing is not kinked , secure oxygen delivery device to flow meter , and attach humidification container (with connection tubing if needed).

4-Prepare child and family . Consider having someone support or comfort the child .this may include having someone assist in placing the nasal cannula or mask on the child .

5-Position child as needed.

6-Adjust flow meter to ensure delivery of appropriate oxygen concentration per physician's order.

7-Place oxygen delivery device on child .(if using the nasal cannula , place prongs of the cannula in the anterior nares. if using mask, determine correct size. The mask should extend from the bridge of the nose to the cleft of the chin.it should fit snugly but not pressure on the eye, which could stimulate a vagal response . with either the cannula or the mask , place the elastic band around the child's head. If using a blow-by cannula, the caregiver may hold the child in his or her lap and

direct the tubing toward the child's face . the cannula may also be placed next to the child's head and directed toward the child's face).

8-Obseve child's response . Assess respiratory rate , effort , color, heart rate, and mental status .auscultate breath sounds for symmetry and adventitious sounds. Continue to monitor as needed.

9-Analyza inspired oxygen concentration using pulse oximeter .analyze the oxygen concentration in the hood. continue to monitor oxygen concentration hourly or continuously depending on the child's condition and /or physician's order. If using a tent determine oxygen concentration with an oxygen analyzer.

10- Notify doctor of clinical changes .

11-Assess potential pressure sites at least every two hours(nares, ears, sides of the check) for irritation if using nasal cannula.

12-Monitor sterile water container.

DOCUMENTATION

1-Client assessment prior to and immediately following oxygen administration, including oxygen saturation ,respiratory rate ,effort , color, breath sounds, and heart rate .

2-Type of oxygen delivery device and flow rate every 4 hours.

3-Client cardiorespiratory assessment every 4 hours while oxygen administered .not any changes in skin condition due to irritation of nasal cannula , mask ,elastic band ,or hood.

Flow meter

Pulse oximeter

Simple face mask

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BLOOD WITHDRAWAL

Equipment Required for Blood Collection:-

1-Blood collection system.

2-Tourniquet

3-Disposable gloves

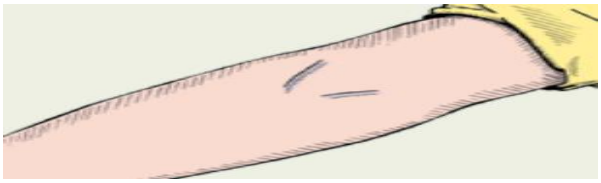
4-Swab

5-Disinfectant

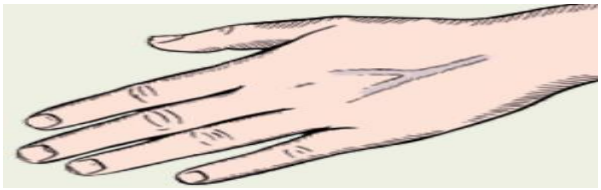
6-Plasters

Vein Selection: Priority List:-

1- Median antecubital veins

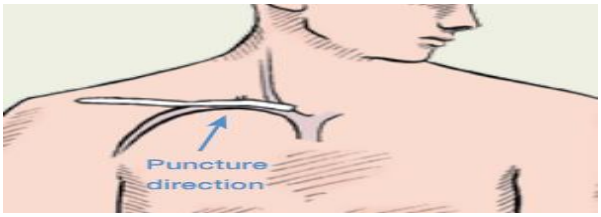


2- Dorsal hand veins



3- Foot veins

4- Subclavian vein



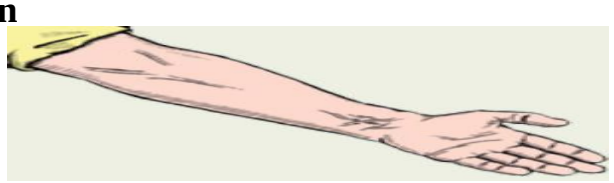
5- Femoral vein or artery

Inspection

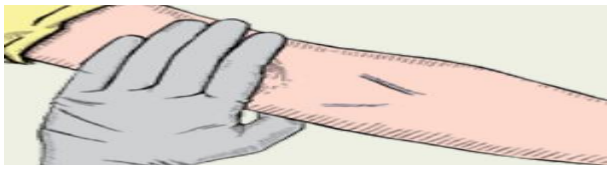
Before deciding on a puncture site, an inspection of all possible areas is imperative .The order of inspection should correspond to the list of priority sites, whereby the first and second sites should be suitable in 95% of the cases. The back of the foot can be quite painful, and is not popular amongst patients. Puncture of the subclavian vein or the femoral vein / artery requires a special blood collection technique, and should only be considered if there is no better alternative, and should only be carried out by experienced personnel.

Measures to Improve Prominence of Vein

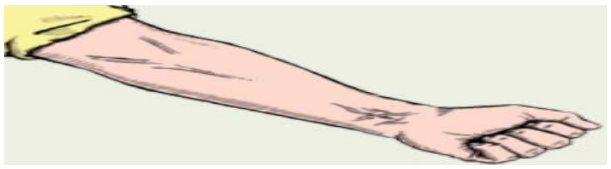
1- Incline the arm in a downward position



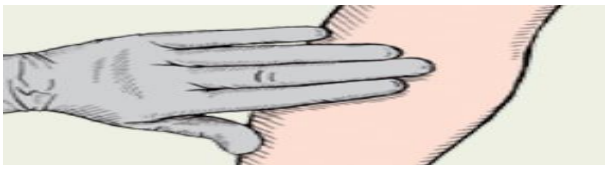
2-Stroke the vein in a distal direction



3- Clench the fist

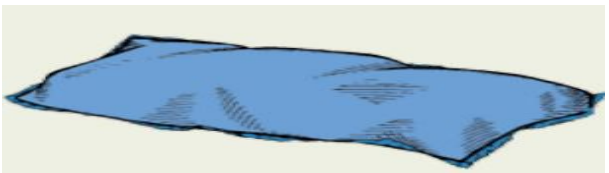


4. Tap the vein



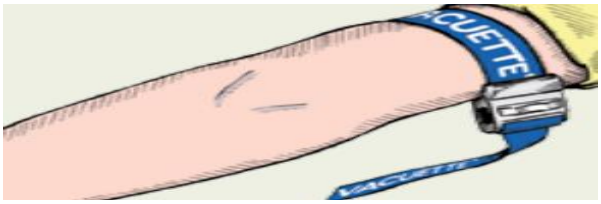
5-Warm the area

(bathe arm or use a heating pad)



6-Skin patch with local anesthetic

Applying the Tourniquet



A standard tourniquet or blood pressure cuff is applied about one hand breadth above the anticipated puncture site.

The stasis should not cause the patient any pain, arterial blood flow remains as normal and should not last for longer than one minute (to avoid falsifying laboratory results).

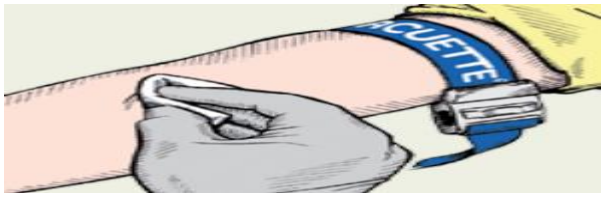
If a longer stasis is required ،then the tourniquet should be loosened occasionally, if the skin becomes discoloured .Once the skin around the puncture site has returned to its normal colour, the tourniquet can be reapplied.

If the tourniquet has been applied too tightly, the extremities will take on a blue colour ،and it should be released immediately until the skin returns to its normal colour. The ideal stasis is as short as possible, and should not last longer than one minute. If the blood flow is insufficient for specimen collection, the tourniquet can be reapplied lightly during the collection procedure .

Disinfecting the Puncture Site

The puncture site should be disinfected thoroughly. It is not enough to wipe over the puncture site with disinfecting solution once, and venipuncture may not be carried out immediately, because some time is necessary for the disinfection to take effect.

The skin should be cleansed with a disinfection solution using a circular motion moving outwards.



For standard blood collection, reduction of bacteria in skin flora takes place after about 15 - 30 seconds when an alcoholic solution is used.

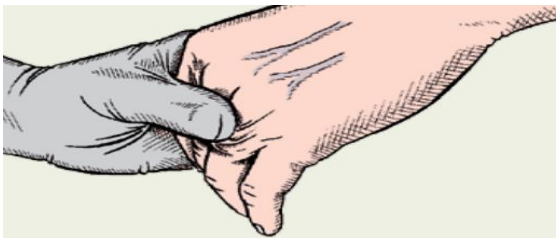
Routine Puncture Sites

median anticubital veins

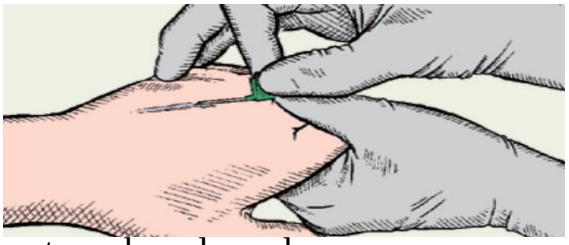
This is the most popular site for venipuncture. It is always worth taking time to inspect both arms, to be able to choose the arm with the most prominent veins.

Light hand pressure on the upper arm should cause the veins to dilate significantly .Palpation of the vein can at this point be carried out without wearing gloves.

Dorsal hand veins



A right handed person should use his/her left hand to take the patient's hand intended for venipuncture, pulling the skin in a downward direction until taut.



The needle or blood collection set is inserted into the middle of the targeted vein, at an angle of 10 - 20 degrees.

As soon as the blood flow starts, the tourniquet can be released.

Factors Leading to Difficult Vein Conditions

1-Anxiety 2-Cold 3-Vasoconstriction of veins 4- Thin veins 5-Repeatedly punctured veins 6-Rolled vein 7-Delicate veins (children / woman) 8- Poor hydration 9-Cachexia 10-Brittle veins 11-Pre-shock or shock 12-Long term treatment with steroids.

Blood Collection With Small Children

Technically speaking, blood collection with children from around 2 years and onwards is not that different to blood collection with adults .

The collection equipment must be suitable for the smaller dimensions of the vessels .Above all, a calm and friendly atmosphere is extremely important for the young patients.

Children are far more cooperative, if the procedure has been explained to them.

Application of a local an aesthetic patch on the area intended for venipuncture about an hour beforehand is very important for ensuring that the puncture procedure is as harmonious as possible. The situation can be made easier, if the child is sitting on the mother‘s lap or on the lap of an assistant. Puncture on the back of the hand or in the antecubital area is to be carried out using a small bore vein set. Evacuated tubes with a reduced volume are used. It is very important to hold the arm steady, as reflex movements to escape must be reckoned with.

Puncture in the antecubital area

For venipuncture in the antecubital area, the assistant holds the upper arm of the child, the grip acting at the same time as a tourniquet. If the arm circumference is already too big, a child‘s tourniquet can be used. With the left hand, the phlebotomist pulls the skin in this area taut. With the right hand, the needle of a blood collection set is inserted into the vein at an angle of approx15 degrees. The vein area should no longer be sensitive to pain due to the application of a local an aesthetic patch. When the vein has been reached, and blood flow can be seen in the plastic tubing of the collection set, the grip with the left hand can be released. The tube holder

can then be connected to the blood collection set. The assistant or accompanying parent makes sure that the child remains as calm and quiet as possible during the whole procedure.

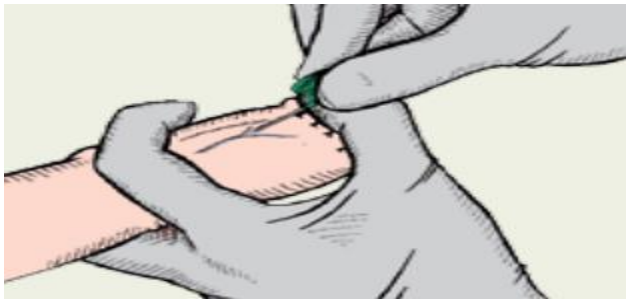
Dorsal vein puncture

The stasis should be carried out by the assistant, preferably gripping firmly around the arm a handbreadth above the wrist. The fingers are held with the left hand, and pulled downwards, so that the skin on the back of the hand is taut. The needle should be inserted at an angle of 10 to 20 degrees. The limb should be held firmly during the whole venipuncture procedure, in order to avoid jerky movements that could pull the needle out of the vein.

Foot vein puncture

Puncture of a foot vein is carried out after stasis by an assistant‘s hand grip.

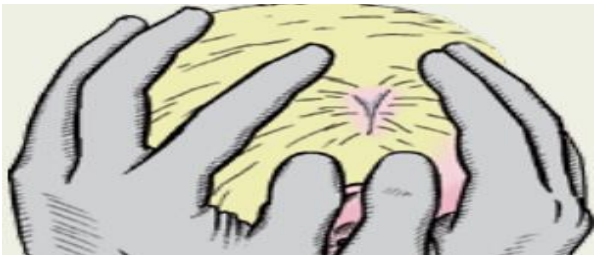
The toes are pulled downwards, and the skin on the back of the foot is pulled taut .



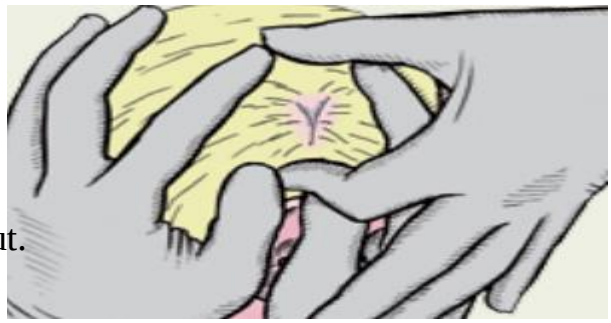
Blood Collection With Neonates and Infants

Scalp vein puncture

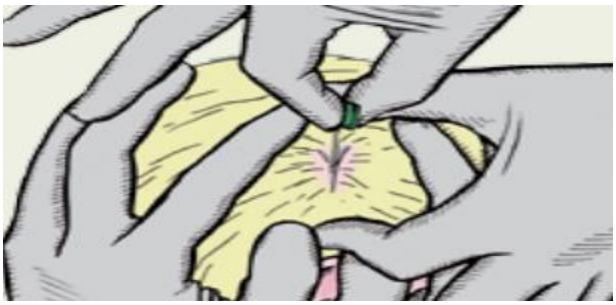
Using a cloth, the infant‘s arms are fastened to his/her body, to prevent defensive movements . By combing through the hair on the scalp, the best suitable vein can be located.



An assistant holds the head firmly but gently, fixing the scalp area where the intended vein for puncture is. Using both hands ‹the hair is parted, and the skin of the scalp below pulled taut. The vein can then be pressed with the fingers.



The phlebotomist spreads his fingers of the left hand across the scalp, keeping the skin taut to avoid rolled veins. After disinfection, the vein is punctured very tangentially using a small dimension blood collection set (angle 5 - 10 degrees).

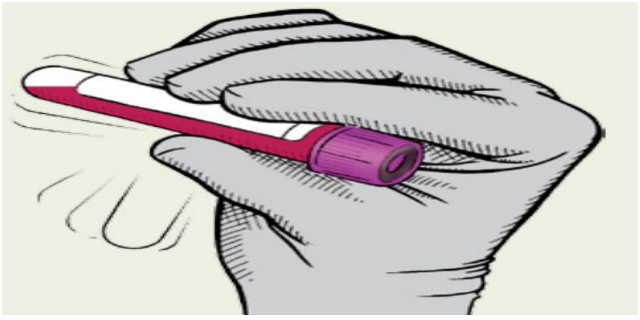


As soon as the blood flows, Blood Collection Tube is inserted. When the tube is full, it is first removed from the holder and then the blood collection set can be removed. Using a sterile swab, light pressure is placed on the puncture site for at least 2 minutes, until the blood flow has stopped . The infant is then placed in an upright position and is soothed.

Laboratory Requirements

From the laboratory‘s point of view, the stasis should always be as short as possible (laboratory values can be falsified, if the stasis is too long). A long stasis can in particular have an effect on the protein values, the cell count, lipids and on other substances bound to protein . Furthermore, excessive application of the tourniquet can lead to hemolysis . To prevent potassium values from increasing, excessive handling of the veins, for example heavily tapping the veins, should not be carried out routinely. This should only be applied in special cases.Tubes containing anticoagulants should be drawn last . This prevents impurities from anticoagulants occurring in other samples.

Coagulation tubes should be fully inverted (180°) 4 times after filling, and all other tubes 8 times.



To obtain the full effect of anticoagulants, a thorough mixing is necessary.

The air bubble should move from one end to the other, and then back again ‹for a full inversion.